



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/599,726	06/23/2000	Shinichi Irisawa	Q59149	9228

7590

09/20/2002

Sughrue, Mion, Zinn, Macpeak & Seas  
2100 Pennsylvania avenue n.w.  
Washington, DC 20037-3202

EXAMINER

ROY, SIKHA

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 09/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/599,726

Applicant(s)

IRISAWA ET AL.

Examiner

Sikha Roy

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3 and 5 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2, 4, 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

The Amendment, filed on July 19, 2002 has been entered and is acknowledged by the Examiner.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0818805 to Fukuyo et al. in view of JP 07226185 to Masashi.

Regarding claim 1 Fukuyo et al. disclose (column 5 lines 25-45 Fig. 1) an arc tube comprising an arc tube structure 10 having a quartz glass tube W having a discharge space W2 and pinch-sealed portions W1 formed on the two sides of the discharge space, a pair of tungsten electrodes 6 pinch sealed in the pinch seal portions 13 and projecting in the discharge space in the closed glass bulb so as to be opposite to each other.

Claim 1 differs from Fukuyo et al. in that Fukuyo et al. do not exemplify the average roughness of the surface of each electrode being  $3\mu\text{m}$  or smaller.

Masashi in analogous art of discharge lamp discloses (please see English abstract and constitution) tungsten electrode having fine recessed parts discontinuous in the circumferential direction and lengthwise direction formed on the outer peripheral surface whose average roughness is  $3\mu\text{m}$ . It is further disclosed this average surface

Art Unit: 2879

roughness of the electrode firmly fixes the electrode, simplifies manufacturing process and maintains air resistance of sealing.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the electrodes of the arc tube of Fukuyo et al. by having the average surface roughness of  $3\text{ }\mu\text{m}$  as suggested by Masashi for firmly fixing the electrode and simplifying manufacturing process.

Regarding claim 2 Masashi discloses the peripheral surface of the tungsten electrode is polished to provide a smooth outer peripheral surface.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0818805 to Fukuyo et al. and JP 07226185 to Masashi and further in view of U. S. Patent 6,249,086 to Honda et al.

Referring to claim 4 Fukuyo et al. and Masashi do not disclose the average surface roughness being  $2\text{ }\mu\text{m}$  or smaller.

Honda et al. in relevant art of discharge lamp disclose (abstract) the average value of the center line average roughness of the surface of the electrode is set to be  $1.0\text{ }\mu\text{m}$  or less. Honda et al. further disclose (column 3 lines 13-20) with this predetermined value of this average roughness of the surface of the electrode, electron emission characteristics from the surface of the electrode can be improved and the blinking of discharge can be prevented.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the average roughness of the surface of the electrode of Fukuyo

Art Unit: 2879

and Masashi to be 1  $\mu\text{m}$  as suggested by Honda et al. for improving the electron emission characteristics of the electrode.

### ***Allowable Subject Matter***

Claims 3 and 5 are allowed over the prior art of record.

The following is an examiner's statement of reasons for allowance:

The prior art of record neither shows nor suggests the method of manufacturing an arc tube with all the limitations as claimed particularly the limitation of pinch sealing at a temperature equal to or greater than 2000 °C.

Claim 5 is allowable being dependent on the allowed claim 3.

### ***Response to Arguments***

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited to show the state of the art with respect to pinch sealing discharge lamp.

U. S. Patent 4,587,454 to Bonazoli et al.

U. S. Patent 5,286,227 to Numajiri et al.

Art Unit: 2879

**Contact Information**

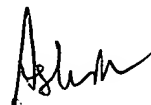
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (703) 308-2826. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (703) 305-4794. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

S.R.

Sikha Roy  
Patent Examiner  
Art Unit 2879



**ASHOK PATEL  
PRIMARY EXAMINER**